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# U.S. DEPARTMENT OF AGRICULTURE

## FARMERS' BULLETIN

607

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### THE FARM KITCHEN AS A WORKSHOP.

By ANNA BARROWS.

#### INTRODUCTION.

The kitchen is the workshop of the home, for the greater part of the housework, particularly that which pertains to the family food, is carried on there. As in any other well-ordered workshop, it is essential that the kitchen be conveniently located with reference to the other rooms and conveniently built, that the necessary equipment be provided and so arranged that the various tasks of the kitchen may be performed thoroughly and rapidly and at the same time with the least expenditure of energy on the part of the housewife, and that suitable provision be made to secure the personal comfort and well-being of the workers.

According to the census of 1910 there are in the United States over 6,000,000 farms. On each of these there is presumably a farmhouse and a kitchen. In each of these 6,000,000 farm kitchens at least one woman is working. It is safe to say that in fully one-third of them the housekeeper has the assistance of relatives or hired helpers. A conservative estimate indicates, therefore, that there are 8,000,000 women working in the farm kitchens of the country, most of them many hours a day.

Improvement in the arrangement of the farm kitchen should, therefore, result in saving the energies of 8,000,000 people, and make their work less heavy and more enjoyable. The kitchen has been, and too often is at present, living room, dining room, wash room, laundry, entry from outdoors, and passageway to other parts of the house, as well as cookroom. Even in houses where it is possible to use the kitchen for the preparation of food only, it is very often far too large and is used for work which might better be done elsewhere.

The use, and consequently the size and location of the kitchen, varies greatly in different parts of the country. The present tendency, however, is toward small, compact kitchens used only for the preparation of food. Climate affects such matters; for instance, the

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NOTE.—This bulletin is of interest to farm women throughout the country.

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detached or semidetached kitchen of the far South is there logical and desirable, since it means a cooler house.

Each housekeeper must, therefore, study her own conditions and decide whether it is best for herself and her household to make the kitchen a "general-purpose" room, or whether another plan is feasible and will result in more comfort for all.

There should also be cooperation between the housewife who is to live and work in the house and the architect who plans the house, especially with reference to the kitchen, that the important views of both may receive due consideration.

#### RELATION OF KITCHEN TO OTHER PARTS OF THE HOUSE.

While the kitchen is the center and workshop of the home, its work also extends more or less to other parts of the house. In planning or building a home, it is of greatest importance that the relation of the kitchen to the other rooms be considered. The kitchen work is most closely associated with the pantry, dining room, and the store room, cellar, or woodshed. These should be located as near and conveniently as possible to the kitchen so that the journeys which must be made so often between these rooms will be as short as possible, thus saving many steps and a great amount of energy.

Other parts of the house which are closely related to the kitchen, although to a less extent, are the entry, or other place where wraps are left; the toilet, where hands are washed; the laundry; the living room; and the bed rooms, where children must frequently be cared for. Wherever possible these rooms should be located within easy access of the kitchen.

The pantry should be so located that it is convenient to both kitchen and dining room, which means that it must be near or adjacent to both. To meet the latter condition, it is often located between the dining room and the kitchen, and is then designed to be used both for preparation of food and for the storage of food, food supplies, china, table linen, etc. If it is narrow in proportion to its length and located lengthwise between the two rooms, it does not very appreciably increase the distance which must be traveled from the kitchen to the dining room. Two pantries are sometimes desirable, especially when there is an abundance of help in the kitchen. One of these is generally used for the preparation of food and storage of food and supplies, while the other is used as a serving pantry and contains counter space, shelves, and drawers for the storage of dishes and table linen, and a sink for washing the dishes. In this case, the sink in the kitchen would be used for washing and cleaning meat, vegetables, and cooking utensils.

Space should be provided in the kitchen and within easy access of the pantry and dining room for the work table, sink, stove, and

ice box. It is also desirable that provision be made for filling the ice box either from the outside of the house or the entry, so that the person filling it will not be obliged to enter the kitchen. This will save much mopping and cleaning. Refrigerators can be purchased which are fitted with a door on the side or back of the ice chamber, and an opening corresponding to this door may be cut in the wall of the house and the chest filled from outside. This opening should be fitted with a hinged window or door and provided in winter with a heavy screen, so that it can be left open and the ice chest kept cold for the storage of food. When this is done the window frame should be tightly joined to the refrigerator, so that cold air may not come into the kitchen as well.

A shed for the storage of fuel or other general storage room should be located within easy access of the kitchen and on the same level with it. A separate room should also be provided for laundry purposes wherever possible, and this should also contain a sink, so that those coming into the house from out of doors may have some other place for washing their hands beside the kitchen sink. A closet or some other convenience should always be provided in the entry for coats, hats, overalls, etc.

In order to obtain light from two directions and "cross ventilation" the kitchen must be located either on a corner of the house or in a narrow part where there can be windows on opposite sides. Whether the chief exposure shall be north, east, south, or west is a matter governed by individual preference and local conditions. A kitchen which receives the morning light is usually desirable.

It is also advisable, if possible, to locate the kitchen so that clouds of dust will not be blown through the open windows from the road. It is of even greater importance that the kitchen be so located with reference to the barn and other outbuildings that the prevailing winds will not bring unpleasant odors or flies from them.

There should always be one door from the kitchen leading out-of-doors, either directly or better through a short passageway, and also a direct communication between the kitchen and the dining room. To save steps the pantry should contain storage space for the dishes and linen used in the dining room and some of the dishes, towels, etc., used in the kitchen.

The doors between the kitchen, dining room, and pantry should be made to swing both ways, so that they may be easily opened when both hands are full. Such doors should have a glass panel so that persons approaching the door from opposite directions can see each other and avoid colliding, and they should also be provided with some form of door check so that they will remain wide open when so desired. A hook and staple will answer the purpose if one does not care to use some one of the ordinary commercial devices.

In locating the kitchen with respect to the other rooms it is much more desirable for sanitary, esthetic, and other reasons that, if a bedroom is needed on the ground floor, it be separated from the kitchen and dining room by a hall or wall.

#### THE MATTER OF FLOOR LEVELS.

The kitchen, and so far as possible, all of the rooms, pantries, and passageways into which the housekeeper is likely to go often from the kitchen should be on the same level. Steps between kitchen and dining room, or kitchen and porch, waste time and strength, are dangerous, and may be the cause of broken dishes, and what is worse, broken bones. The question of floor levels should, therefore, be kept in mind particularly when old buildings are being remodeled.

If for any reason kitchen, dining room, and storerooms can not be on the same level, let the kitchen be where most light and air are available.

Basement kitchens are undesirable because the dampness, poor ventilation, and lack of light, which are apt to prevail in such rooms, may affect the health of the worker and favor the activity of bacteria and molds which cause the spoiling of food. A basement kitchen very often means a difference in floor levels of dining room and kitchen. If, however, there must be a basement kitchen, a dumb-waiter or "lift" is an important and useful addition.

A refrigerator, a cold pantry, window box, or food safe should be on the same floor as the kitchen, instead of in a cellar, to save time and labor and for sanitary reasons. Where this is impossible a dumb-waiter connecting with the cellar is again desirable.

#### SIZE OF THE KITCHEN.

In determining the size of the kitchen the housekeeper must, first of all, make a decision with regard to the uses to which the kitchen is to be put. If the meals are eaten in the kitchen a larger room is required than if it is used for cooking only. A small kitchen may serve on a farm located near a town where supplies and cooking utensils may be purchased as desired and where dependence is not placed on farm helpers who must of necessity be inmates of the farm house, while a much larger kitchen is required on a farm, remote from the base of supplies, where many people, including farm helpers as well as the farmer's own family, must be fed and where provision must be made for the storage of large amounts of supplies and a much greater number of cooking utensils. Thus, the location and character of the farm, as well as the size of the family, are factors in determining the size of the kitchen, owing to the provision which must be made for storage in many cases.

On the large farm during harvest the feeding of numbers of extra men, or extra work, such as fruit and vegetable canning in the farmhouse, cause a temporary demand for a large kitchen. It is better, however, to have an extra kerosene stove and to establish a temporary kitchen and dining room on a porch, in a shed, or in another room for such occasional use than to have a large kitchen and to travel over its great distances all the year around.

### FLOORS, WALLS, AND CEILINGS.

All surfaces in the kitchen, whether on floor, walls, or ceiling, should as far as possible be plain and free from cracks, ridges, moldings, and raised forms of ornamentation, for such places not only collect dust and dirt and thus increase the difficulty of keeping a room clean, but also may harbor ants, roaches, and other pests. The materials used in the kitchen, on either walls or floor, should be non-absorbent and easy to keep clean.

#### FLOORS.

Unfinished wooden floors can be kept clean only by frequent scrubblings. Even hard wood floors are likely to show spots and stains in spite of such scrubblings, and the softer woods become rough and splintered. The roughening of soft woods can be prevented to a certain extent by the application of paint, and hard woods can be made less absorbent by the application of oil and special commercial preparations. Hard woods, for instance Georgia pine, are, therefore, to be considered among the more desirable floor coverings. Unless well seasoned before being put down, any kind of board will shrink, leaving large cracks. These may be filled with putty or with one of the commercial preparations for this purpose.

Floor coverings, such as carpets and mattings, which hold dust and dirt, are unsuited to the kitchen. Oilcloth is cheap and easily cleaned, but wears out quickly. Linoleum, a material made of cork or wood pulp pressed in linseed oil, although the first cost is large, as compared with oilcloth or paint, is relatively durable, comfortable for the feet, and easily kept clean. Another advantage is that a single piece may be cut to fit the floor, thus avoiding crevices. It may be protected by placing small mats where the most wear comes.

Whatever the material of the floor, constant scrubbing and the excessive use of soap and water tend to wear out its surface. Much care should be taken, therefore, not to drop food materials on the floor. One should cover with pieces of paper the places where food is likely to be dropped or grease to be spattered. A soft brush or dust mop will keep a floor in better condition than a broom and render mopping less frequently necessary. A dish mop of hotel size, kept always in a convenient place and used dry to remove drops of water or

other liquids accidentally spilled, will save frequent scrubbing of the entire floor, and when dampened and wrung nearly dry can be used to remove spots or dust. If so used it will often prevent dirt from being carried from one part of the room to another.

#### WALLS AND CEILINGS.

The commonest and most generally satisfactory material for walls and ceiling of the farm kitchen is plaster. The lime used should be properly slaked to prevent the development of cracks and blisters and injury to the surface finish. For the same reason, freshly plastered walls should be allowed to dry thoroughly before the finishing surface is applied. Instead of plaster, some of the various composition boards may be used. They may be left unfinished or they may be painted or papered and varnished. The joints between the boards should be covered by narrow battens, making tight joints. Steel wall and ceiling coverings, although durable, should be kept well painted to prevent rusting by steam. The woodwork should be shellacked or painted. A better surface results when a coat is applied every year or two than when several coats are applied at once. A final coat of enamel paint or outside varnish is desirable for such portions of the woodwork as need cleaning most frequently.

The most desirable finish for walls and ceiling is one that will not peel off or crack and that can be easily washed or very cheaply and readily renewed. For walls a good paint gives general satisfaction. For the ceiling the most satisfactory finish is a coat of whitewash or one of the good commercial substitutes for it, which should be renewed annually or biennially. Such finish used on walls can be easily renewed.

Wall paper, unless varnished, is very easily loosened by the steam from kettles. A wall covering resembling oilcloth is somewhat more expensive, but it is more durable, and has a smooth washable surface. A damp cloth on a broom or a large sponge in a mop holder will serve, with an occasional washing, to keep this or a painted surface clean. Tiles and vitrified brick, well glazed and matched, afford an excellent wall surface, but they are costly. Metal tiles are cheaper and nearly as satisfactory.

The best color or tint for the kitchen walls is determined by the location and lighting of the room. Light colors are preferable for dark rooms because they reflect and diffuse the light into darker portions of the room, while dark colors absorb a much larger proportion of the light. Where the principal exposure is toward the south, greenish grays are desirable, but if toward the north or east, with little opportunity for sunshine, the light yellows or creams are better. Two shades of brown often give a satisfactory finish.

## LIGHTING, VENTILATING, AND HEATING THE KITCHEN.

The housekeeper has to spend many hours a day in the kitchen, and sufficient light and ventilation are necessary not only to conserve her health, but to enable her to perform her work most efficiently. The kitchen should, therefore, have a generous number of windows, which provide both light and ventilation. In general, the higher the windows the more effective they are for providing light and ventilation. The air of the room rises as it becomes heated and to let it escape there should be at least one opening close to the ceiling, which may be secured by extending one window to the top of the room and by having its upper sash easy to lower and to raise (as all sashes should be). A window pole with a right angle metal top is a great help in lowering and raising windows. When the carpenter is working on the house a supply of these should be made and kept on hand for they will frequently be needed.

Instead of a window running to the top of the room, small windows may be placed near the top. To save space these may be over cupboard, table, or sink. It is often well to give these high openings the form of transoms which tip instead of move on pulleys, or of casement windows which swing on hinges like doors. Special arrangements (usually pulleys or other commercial devices) must be provided for opening and closing these.

In a room where cooking is done there can hardly be too many windows. It is, perhaps, less expensive and certainly more satisfactory to cut a window than to buy a hood for the range for carrying away smoke, odors, etc. Glass panels in doors allow light to penetrate into dark places—closets or passageways. Glass transoms over the doors may be made to furnish both light and ventilation in such places. If there is considerable danger of breakage, wire glass should be used, and frosted or other translucent glass can be selected when it is desirable to cut off the view, or some of the substitutes for stained glass may be applied to common glass for this purpose.

In the Northern States during cold weather good ventilation may be secured by placing a board, which is as long as the width of the window and any desired width, beneath the lower sash of the window and shutting the lower sash upon it. This arrangement will admit air between the two sashes without drafts. (See fig. 1, p. 8.)

Very good ventilation without great loss of heat may be obtained by use of window screens covered with cotton cloth. These have the advantage of allowing the outside air to enter without producing a draft, and they also keep out dust and dirt. The window of the pantry or storeroom which is to be kept open in winter might well be covered with these screens. The cloth may also be stretched across the window and fastened with thumb tacks or ordinary large-headed



tacks, or brass rings may be sewed to the corners and slipped over nails or hooks in the sides of the window frame.

Window shades or blinds are necessary at sunny windows. At least one window should be equipped with an adjustable shade which can be pulled over either the upper or lower sash or both. Heavy window draperies are not suitable in a kitchen; if there are any curtains they should be plain and of inexpensive cotton material, so that they can be easily washed and frequently renewed.

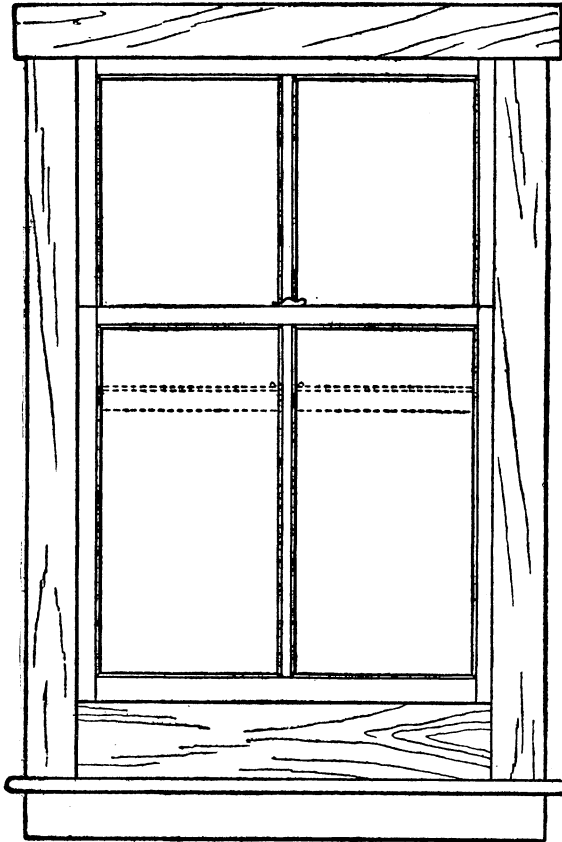


FIG. 1.—Ventilation without drafts secured by placing a board beneath lower sash of window.

Some of the popular styles of architecture require windows having many small panes of glass to each sash, but such windows are more difficult to clean than those having one or two large panes.

Owing to the heat given off into the room while food is being cooked, the kitchen is more often too hot than too cold. However, in the cooler parts of the country, especially where houses are old and the walls are full of cracks or the windows are loose, the problem of heating the kitchen in winter is greatly simplified if means are taken

to keep the cold air out and the warm air in. Various means of accomplishing this purpose are chinking up the cracks with mud, mortar, plaster of Paris, putty, or commercial crack filler, tacking strips of cloth or weather strips around doors, windows, and over cracks, and banking the foundations (which are generally porous and full of cracks in the older houses) with earth, dry leaves, hay, straw, etc. It is well to attend to these matters in the autumn.

Double or storm windows are an advantage in cold regions, especially on cold sides of the house, as they save fuel by keeping out much of the cold air which would otherwise come in through and around the windows. One or more of the double windows in each room should be provided with a slide, which can be opened when more ventilation is desired. Storm windows, in a large measure, prevent the windows from becoming coated with frost and not only help to keep the house plants, which are often kept in the window, from becoming frost-bitten, but tend to improve the lighting of the room. They should be fastened in place with screws and screw eyes, with hooks and staples, or in some similar way, so that they may be easily removed in summer, and should be fitted to the windows and then numbered to correspond with them, so that they may be easily put in place when needed.

#### STORM PORCHES.

In regions where the winter is severe storm porches prevent a great deal of cold from coming in when the kitchen door is opened and can be used to good advantage on the farm. The walls, sides, and roof should be tightly made of matched boards, should fit closely together, and, if fastened together with screws, they may be easily taken apart in the spring and stored until fall. A window should be provided in the door or in one side to admit light. A good plan is to have the storm porch consist of a permanent light wooden framework to which the solid sides can be screwed. These can be replaced in summer with fine wire screens and the solid door with a screen door. The doorway into the house should also have its screen door. This will secure the double screening of the kitchen or other outside door, which is so desirable as it is much more efficient than the single screen door in keeping out flies. Such a "screen porch" is particularly desirable in the warmer sections of the country where the "fly season" is long. Where a storm porch is desirable but not feasible, an extra door of matched boards attached to the outside of the door frame answers the purpose, although it is less convenient.

#### THE SCREENED PORCH.

For summer in the Northern States and for all the year use in the warmer regions of the country, there should, if possible, be a screened porch opening off from the kitchen on the side which is not exposed

to the sun during the hottest part of the day, where in warm weather much of the kitchen work may be done. There are some advantages in having the screened porch on the side toward the garden and opening into it. But, on the other hand, if it is completely screened, has no outside door, and no openings, excepting into the kitchen, and is large enough to offer a place where dish towels and mops can be dried, supplies stored, and garbage and other forms of waste kept temporarily, the number of times the outside kitchen door must be opened will be reduced and thus the danger of letting flies in will be lessened. In cold regions the screens can be replaced in winter with window sash or solid sides and the porch made use of as an extra storeroom.

#### SCREENS.

All windows and outside doors should be screened. Cloth or wire netting tacked on the outside of windows will serve, but it is much better to have wooden or metal frames the full size of the windows covered with wire netting having 16 meshes to the linear inch. This will protect against both flies and mosquitoes. Each screen should be fitted to its special window and both screens and windows should be so numbered that they may be matched up without difficulty. Springs, a weight and pulley, or other self-closing devices are very desirable for screen doors which should close tightly, and preferably be latched. Otherwise they are useless and make it much harder to get flies out than if there were no screens.

#### PLACING OF PERMANENT EQUIPMENT IN THE KITCHEN.

In planning or remodeling the kitchen, the work table, ice box (or other place for the storage of food supplies), dish cupboard, stove, sink, and set tubs <sup>1</sup> (if any) should be so located that the tasks in the kitchen may be performed most conveniently and with the least expenditure of time and energy, which means they must be near together, but must not interfere with free passage from one to the other. Upon the location of the last three in particular depends to a certain extent that of the chimney and water pipes.

The greater part of the work done in the kitchen is that associated with the processes of preparation and service of the food and of cleaning up. These processes consist in collecting utensils which are to be used at the work table; gathering the supplies from cellar, pantry, or ice box; preliminary operations at table or sink, such as mixing, washing vegetables and fruits or meat, cleaning poultry or fish, etc.; cooking; and disposal of the food on the dining table or else in pantry or ice box for future use. The processes of cleaning up involve disposal of surplus food; putting away of equipment not requiring cleaning; collection and disposal of waste and soiled dishes; washing dishes; and

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<sup>1</sup> U. S. Dept. Agr., Farmers' Buls. 317, 342.

the restoring to their proper places of the clean dishes and cleaning utensils.

In performing these various tasks certain distances must be traveled, some of them much oftener than others. For instance, it is necessary to go from the ice box to the cooking table or pantry, from cooking table or pantry to the stove or sink, and in some houses from the pantry to the cooking table very many times. It is evident from this that to shorten the distances traveled the ice box, table, sink, and stove should be placed close together and at the same time in close proximity to the dining room and pantry. Where there is no dining room these should be placed together near the pantry in one end of

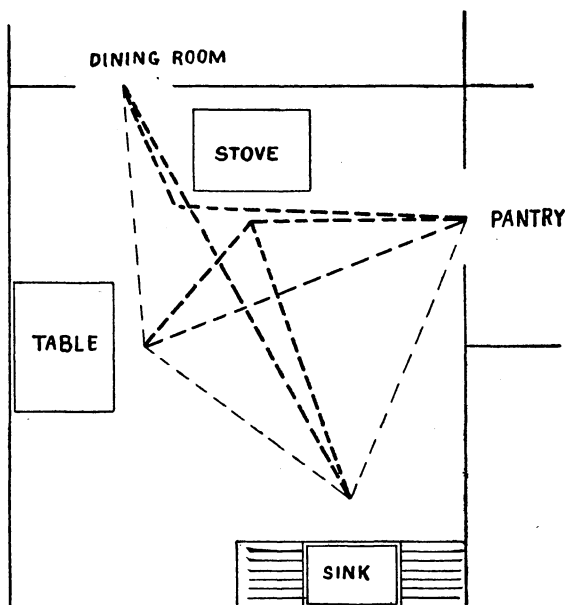


FIG. 2.—Large kitchen in which the inconvenient arrangement of sink and table makes it necessary to walk long distances in preparing and serving a meal.

the kitchen, which should be used strictly for the preparation of the food, the other part of the room being reserved for eating.

Figures 2 and 3 illustrate how time and strength may be wasted in the various steps of these processes by the improper location of the pantry, stove, table, and sink with reference to the dining room. The dotted lines represent distances traveled in the preparation, service, and cleaning-up processes of the meal. Those traveled most frequently are indicated by heavy lines. Figures 4 and 5 illustrate how the distances illustrated in figures 2 and 3, respectively, may be materially shortened and time and labor saved by bringing the stove, table, and sink near together in one corner of the room near the pantry and dining room.

**THE KITCHEN AS LAUNDRY.**

Sometimes a kitchen is used as a laundry, but from the sanitary standpoint it is wiser, expense permitting, to have separate rooms for these two purposes. However, on account of extra expense for plumbing, fuel, and extra labor, it may be desirable to install two set tubs close to the kitchen sink. These are generally covered when not in use and thus serve as a sink table.

In cases where set tubs are out of the question, it is sometimes possible to have a low sink with a drain and to place ordinary wooden tubs over this. Each tub should have an opening in the bottom,

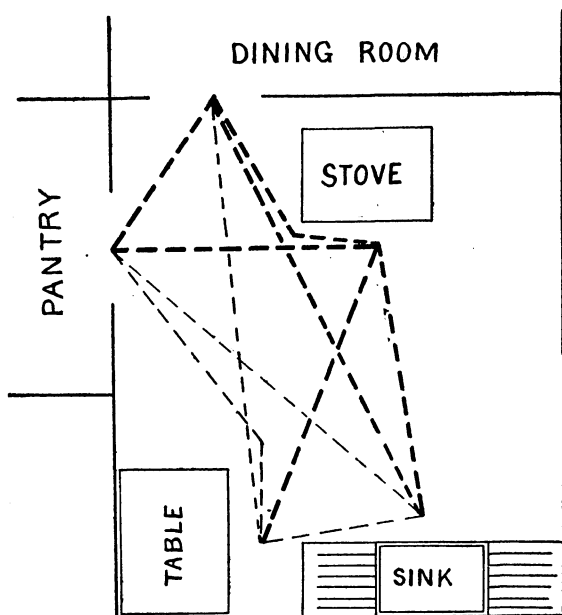


Fig. 3.—Fairly small kitchen in which distances traveled in preparing, serving, and cleaning up after a meal are unnecessarily long due to inconvenient location of sink and table.

fitted with a cork or rubber stopper for the easy removal of water. A piece of hose attached to the faucets will serve to fill the tubs and, where there is no water heater, to fill kettles or boilers on the stove. A hose with a funnel on one end with a wire to attach it may often be made to serve the same purpose where a kitchen pump is depended upon as a water supply.

**PROPER HEIGHT OF THE WORKING SURFACE.**

The top of the stove and work table, the bottom of the sink, or any other surface upon which a given task is to be performed should be at such a height from the floor that the housewife can work easily

without being obliged to stoop or raise her arms unnecessarily. If the surface is too low, as is so often the case, the worker must continually raise and lower the upper part of her body with each motion, while if it is too high she must lift her arms in such a way as to bring unnecessary strain upon the muscles. Both of these mean a needless waste of energy and greatly increase the labor connected with kitchen tasks. They can be avoided by raising or lowering the table, etc., as need be, which, in many cases may be done by placing the table upon blocks of wood preferably hollowed on top to prevent the legs of the table from slipping (fig. 6), or better, by having the table legs spliced. The legs of the table may be easily

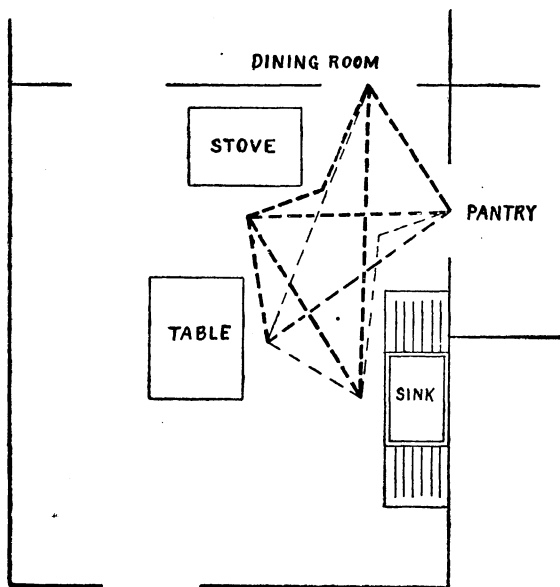


FIG. 4.—Same kitchen as shown in figure 2. The distances traveled have been reduced and many steps saved by cutting another door into the dining room and by moving the table and sink nearer to stove and pantry.

cut off if it is too high. Likewise the stove can be blocked up or placed on shorter legs as may be needed.

It would be a great advantage to have kitchen tables made so that the top can be raised or lowered at will, since any given height is not most convenient for all kinds of work. For instance, in using an egg beater or a chopping bowl, a lower table is more convenient than would be one of the right height for kneading bread. Several tables of different heights are convenient, as each task can then be performed on a table of the most convenient height. Where this is not feasible, a table for general use should be selected of such height that the majority of the kitchen tasks may be performed

upon it with a minimum of stooping or unnecessary muscular strain. In general this should be from 32 to 36 inches high, but the height will, of course, vary with the height of the worker, who should therefore test the matter for herself by trying the same task for a half hour or more on tables or packing boxes, etc., of different heights and determine at which height she can work without strain or undue fatigue. Tables for ironing or other processes where considerable pressure is necessary should be somewhat lower than the table for general use, in order that the weight of the body may be utilized in obtaining the pressure. They should, however, not be so low that the worker will have to bend over too much.

Most sinks especially are too low for even a woman of medium height to wash dishes without stooping, and it would be better to have a box stool for a child or short person to stand on than to oblige a tall woman to stoop to a low sink. The bottom of the sink should not be less than 30 inches from the floor, and 31 inches is better for a woman of average height. The "built-in" sink can be placed at the proper height as easily as any other. If there is no way to raise a sink which is too low, the dish pan may be raised to a convenient height by placing it on a rack or some other utensil.

#### THE STOVE—ITS LOCATION AND CHOICE.

Before choosing a stove or range its proper position in the kitchen should be determined. Room must be allowed for the hot-water boiler (if there is one), and it need not necessarily be placed at the side of the range, but may be suspended from the ceiling and need not necessarily be close to the range if space is limited. It must, however, never be placed below the level of the range, as the water will not circulate and heat satisfactorily under this condition. As the boiler gives off considerable heat it may be economical sometimes to put it a little distance from the stove and where this heat may be utilized. Allowance must also be made for opening the oven door readily. The oven is usually on the right and the fire box on the left, but in some stoves this is reversed. Where room is limited an oven door which opens downward instead of either to right or left is a convenience.

The floor under the stove or range should be made of or covered with some fireproof material. A built-in base of cement or brick is best, but when this is impossible some one of the composition materials, made of a mixture of cement and asbestos, which can be bought by the square foot, will do very well as a protection for the floor and also for the walls back of the stove. Sheets of zinc or galvanized iron smoothly laid and securely tacked are useful for these purposes.

The kind of cook stove chosen will also be determined largely by the available fuel supply; its size by the amount of work to be done with it. It should be of reliable make not only to insure good construction, but also to make sure that parts can be easily renewed as needed. A larger range than is needed for cookery is often selected in many homes where the kitchen fire is used for cooking and for heating the house in cold weather. It would be wiser in many cases to use a liquid fuel stove in summer for cooking purposes or else to have a small range for cooking and an additional heater for warming the kitchen in winter, thus saving fuel and avoiding the overheating of the house in summer. In houses which have a furnace or other central heating system, the kitchen should be provided

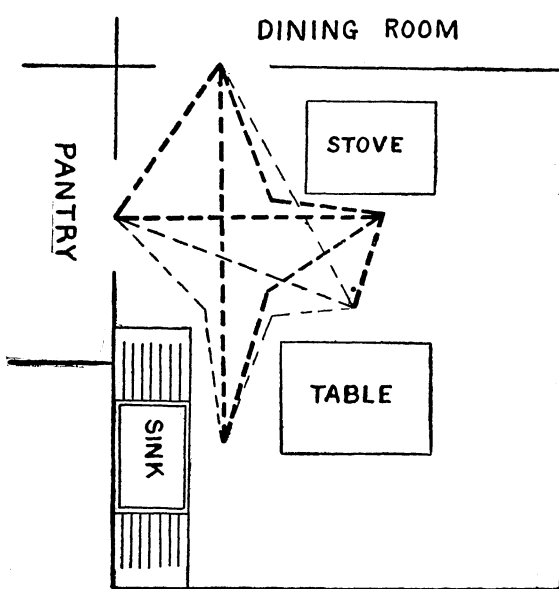


FIG. 5.—Same kitchen as that shown in figure 3. Steps have been saved by putting the sink and table in more convenient locations with respect to pantry, stove, and dining room.

with a radiator or hot-air register for heating purposes. It will then be possible to use a liquid-fuel stove for cooking in winter as well as summer, and the price of a kitchen stove or range may be saved if desired, as both types of stove will not be needed.

#### THE LOCATION OF THE KITCHEN SINK.

The place of the sink, like that of the stove, is often apparently settled by the builders of the house without reference to the house-keeper's convenience and the position of the other kitchen furniture. If there are water pipes or drainpipes to be considered, their position can be more easily changed than that of the chimney, and should



be so changed if convenience demands. The sink is usually placed with its long side against the wall, but this is not always the best plan. Some modern houses have the sink near the middle of the kitchen, so that it may be used from both sides instead of from one only. Or, it may be convenient in some rooms to have the end against the wall and the faucets there, if there is running water in the house, as there should be if possible. This reduces the danger of breaking dishes by hitting the projecting faucets. This danger may also be reduced by attaching short pieces of rubber hose to the faucets. The sink and the stove should be near together to save a long journey across the kitchen when a kettle must be filled or emptied, but not so near that the heat will be oppressive when working at the sink. It should be where there is good light, but not across the main window of the kitchen, and should always be placed at a height most convenient for the worker, as discussed under "Proper height of the working surface."

The size of the family and of the kitchen must determine the size of the sink, but a short sink with ample table and shelf room near it may be more convenient than a long sink. Two smaller sinks, one for the table dishes near the dining room and the other for general use in the kitchen, are very convenient.

The material of the sink should be the best available, nonabsorbent of grease as well as of moisture, and there should be no cracks or square corners to increase the work of keeping it clean. A wooden sink and sink spout, even when they receive an annual coat of paint, will absorb moisture and grease which attract insects, and are likely to be swarming with bacteria and to "sour" and have an unpleasant odor. Even drain boards of wood are not recommended unless they have a waterproof finish of oil or paint. If a wooden sink is necessary, it is better to have it metal lined, providing the sheets of metal, which is usually tin, zinc, galvanized iron, copper, or lead, are soldered where they are joined and all parts of the sink, including the tops of the sides, are covered with the metal, so that there is no chance for the wood to absorb moisture. Another plan is to have a cement sink built into a wooden frame and lined with sheet copper or tin.

Iron sinks of good quality are superior to wooden ones, since they do not absorb grease or moisture and are durable. They are easily kept clean if smooth (and they will soon wear smooth), but they have the disadvantage of neither showing dirt nor proclaiming their cleanliness. Unless the front is protected by a strip of wood, the dresses and aprons of the worker are likely to become stained with iron rust. A soapstone or a slate sink is durable, but sometimes becomes uneven with wear, and if this happens much brushing and scrubbing are required to remove the sand and grease which gather in the depressions when vegetables are cleaned, dishes washed, etc.

Like iron, they do not show whether they are clean or not. Enamelled iron and porcelain sinks are probably the most satisfactory, since they are smooth and may be easily kept clean and last well with careful use, but they are more expensive than some of the other kinds. Perhaps the ideal plan is to have a porcelain sink for the tableware in the kitchen or the pantry near the dining room, and an iron or soapstone sink for the heavier kitchen ware.

The double sinks, with one basin for washing and another for draining dishes, are very convenient, but unfortunately they are relatively expensive. A small sink with a rubber stopper for its escape pipe may be used as a dish pan when two sinks are used.

The wall behind the sink should be covered with some material which will not absorb water or grease and which is high enough to hold the faucets if there are any. A solid back of the same material as the sink reduces the number of places which collect dirt and attract insects. Sheet zinc may be used when a solid back can not be obtained, but it must be carefully fitted and held in place with plenty of neatly set nails.

It is important that the sink stand true and level, for if it does not there may be a point lower than the drain where water can settle. Many good sinks are built with a slight slope toward the drain. In case water is scarce and it is difficult to flush the drainpipe properly after the sink has been used, it may be better to wash dishes on the table and carry away the waste water. Openings to all pipes in tubs and sinks should be screened to prevent clogging of the drains.

The plumbing should be easy of access, and, therefore, it is better that there should be no closet under the sink. Hooks or shelves under the

sink or near it will accommodate everything usually kept in the dark, often musty, "sink closet" of older kitchens. A "sink closet" can be kept sweet and clean, but it means extra work to do it. It is far wiser to have things in sight and in order than to have the extra work of keeping the "sink closet" clean or run the risk of having it an untidy place, which is no better just because it is out of

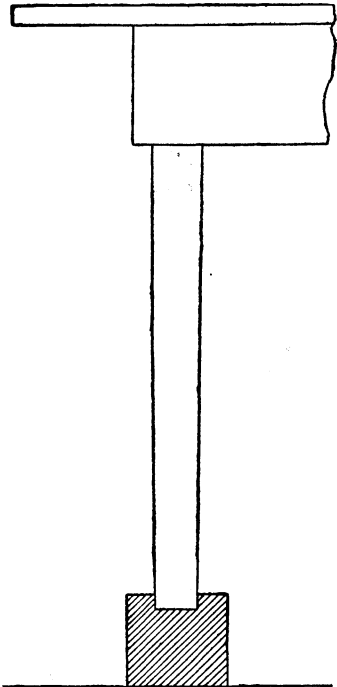


FIG. 6.—A table which is too low may be raised to the correct height by placing under each leg a block of wood, the top of the block being hollowed out to prevent the table from slipping.

sight. If there is a shelf under the sink it should be from 4 to 6 inches narrower than the sink and at such a height that one can easily clean the floor under it.

There should be a wide shelf or drain board on each side of the sink on a level with the rim of the latter, one to receive soiled dishes and the other clean ones. Some housekeepers have these covered with zinc, but, as in all other places where it is used, the metal must be neatly fitted and closely fastened down so as not to leave any chance for loose, rough edges, or to provide breeding places for insects or a lodging place for grease and dirt. If there is no place for permanent shelves, sliding or hinged shelves may be used. A right-handed person usually holds the dish in the left hand while washing or wiping it, and the dishcloth, dish mop, or towel in the right hand. It is convenient, therefore, to have the dishes move from right to left as they pass from dish pan to rinsing pan, and from rinsing pan to drainer and tray. This should be kept in mind and a drain board placed at the left of the sink.

#### SHELVES, CLOSETS, ETC.

In planning the storage places in the kitchen and pantries, the main factors to be considered are to keep each article near the place where it is most frequently used, to place the closets, shelves, and drawers where they are easily accessible and easily kept clean, where they will not be in the way, and where, as far as possible, they will utilize space otherwise wasted. To insure cleanliness they should be made of good wood, free from holes, knots, or other roughness likely to catch dirt and harbor insects. A further help in making shelves easy to clean is to leave a small space, say half an inch wide, between the back edge of the shelf and the wall.

Corner closets furnish an excellent method of utilizing space often of little value in the room otherwise. The triangular space is not very convenient for dishes, but serves well for a broom and cleaning closet. Narrow shelves sometimes economize space better than wide ones, for all the articles on them can be easily reached, whereas on the wide ones either part of the shelf room is wasted or the things in front must be moved to get at those behind. A shelf not more than 4 inches wide will conveniently hold spices, flavoring extracts, baking powder, and materials of this kind. Fitting deep shelves with shallow boxes or "trays" (light wooden boxes with sides about four inches high and with a knob or handle on the front end so they can be conveniently moved) is often worth while. These shallow boxes can be filled with bottles, cans, and other small articles neatly arranged. To take out the tray, select the article one wishes, and replace the tray is much more convenient than moving a large num-

ber of things about on the shelf until one finds something which may be at the back of it, and leaves the articles in much better order. Such a device as this (and it can be made at home) has been tested and proved its usefulness.

It is often poor economy of space to put shelves all the way up the wall of a high room, for even with a stepladder considerable effort is required to reach the things at the top. Certainly no articles which are used at all frequently should be kept on high shelves. Practical housekeepers usually keep on open shelves dishes and supplies which are frequently used or from which any dust can be readily removed, and in closed cupboards those which are seldom used or which dust might injure. However, the general tendency nowadays seems to be away from closed cupboards. If doors are used, ample space should be allowed in the room for them to swing out. If space is limited, two narrow doors may be better than one wide one, or the doors may be made to slide instead of swing. Where any kind of a door is impracticable, a curtain on a spring window-shade fixture may be used, but it should be made of material easy to take down and to wash or else should be replaced as often as soiled. Glass doors have the advantage of displaying the contents of the shelves, but the disadvantage of being easily broken. In the cellar or cool pantry frames with wire netting may be used in place of doors as a protection against vermin.

For general use in the kitchen drawers are less convenient than shelves, because more work is required to open and shut and to clean them; they are also more expensive than open shelves. For towels and cloths, however, a few are almost indispensable. Clean old cloths which may be thrown away after use, new cheesecloth for miscellaneous purposes, squares of scrim or flannel for straining, etc., and old newspapers for wiping stove and for other uses will be found a great convenience. A chest of drawers on casters or a small bureau is often more convenient than built-in drawers. For most kitchen purposes shallow drawers are better than deep ones, because the contents require less handling. One of the kitchen cabinets now on the market may be found less expensive to install than its equivalent in closets, shelves, bins, etc., and it will often save much of the labor of preparing meals by grouping in one place the ingredients, appliances, and working space required.

#### CONCLUSION.

In planning a new home or remodeling an old one it should always be borne in mind that the placing of the stove, sink, and work table in such a way as to secure the advantages discussed in the preceding pages will save the housekeeper many steps in the tasks of the kitchen. Time and energy will also be saved if the shelves, cupboards, and

drawers are located near the place where the supplies or equipment which they are to contain are to be used, and they will be even more convenient if they are so planned that their contents may be easily and quickly removed or replaced. In selecting the equipment only that which is most convenient and durable should be purchased. As in any well regulated workshop, all the equipment necessary for the convenience of the worker should be supplied, but that equipment should be installed first of all which will be used most often, and it should be of such a character and so located that it will result in the greatest saving of labor.